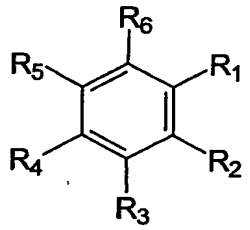
CLAIMS

1. A method for modifying an amino-terminated surface of a solid support with carboxy groups comprising the steps of:

a) providing an amino-terminated surface; and

b) contacting the surface with a compound of the general formula (I):



(I)

wherein at least three of R_1 to R_6 are, independent from each other, selected from

$-(CH_2)_n-(C=O)-X-Y-Z$, and the remaining R groups are H; or R_1 and R_2 form a ring, preferably an anhydride;

X is a group selected from C_1-C_{10} alkyl, C_1-C_{10} alkenyl, a C_3-C_8 cycloalkyl, aryl, heteroaryl, or a polyethylene glycol chain of the general form $(CH_2-CH_2-O)_m$, wherein m is an integer from 1 to 450, or X is a bond;

Y is a carbonyl group, or a bond;

Z is OH or an electron withdrawing group; and

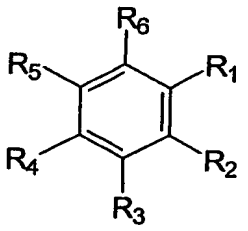
n is an integer from 0 to 10,

under conditions allowing the formation of an amide bond between a carboxy group of the compound of the general formula (I) and the amino group of the solid surface.

2. A method for modifying an amino-terminated surface of a solid support with carboxy groups comprising the steps of:

a) providing an amino-terminated surface; and

b) contacting the surface with a compound of the general formula (I):



(I)

wherein:

(i) at least three of R_1 to R_6 are, independent from each other, selected from $-(CH_2)_n-(C=O)-X-Y-Z$ and the remaining R groups are H; or

(ii) R_1 and R_6 are together of formula $-(C=O)-Z'-(C=O)-$ so as to form a ring, at least one of R_2 to R_5 are, independent from each other, selected from $-(CH_2)_n-(C=O)-X-Y-Z$ and the remaining R groups are H;

X is a group selected from C_1-C_{10} alkyl, C_1-C_{10} alkenyl, a C_3-C_8 cycloalkyl, aryl, heteroaryl, or a polyethylene glycol chain of the general form $(CH_2-CH_2-O)_m$, wherein m is an integer from 1 to 450, or X is a bond;

Y is a carbonyl group, or a bond;

Z is OH or an electron withdrawing group;

Z' is O or S; and

n is an integer from 0 to 10,

under conditions allowing the formation of an amide bond between a carboxy group of the compound of the general formula (I) and the amino group of the solid surface.

3. The method of claim 1 or claim 2, wherein the solid support is glass, a polymer, a metal, a semiconductor or an insulator.

4. The claim of any one preceding claim wherein the solid support is glass, a polymer, a metal, a semiconductor or an insulator, particularly preferred the surface is an amine-terminated siloxane surface.

5. The method of any one of claims 1 to 4, wherein n=0 for the at least three of R_1 to R_6, and the remaining R groups are H.

6. The method of any one of claims 1 to 4, wherein n=1 for the at least three of R_1 to R_6, and the remaining groups are H.

7. The method of any one of claims 1 to 4, wherein n is an integer from 2 to 5 for each of the at least three of R_1 to R_6, and the remaining groups are H.

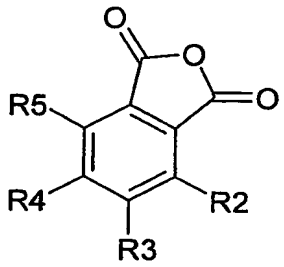
8. The method as described in any one preceding claim wherein three of R_1 to R_6 are, independent from each other, selected from $-(CH_2)_n-(C=O)-X-Y-Z$ and the remaining R groups are H.

9. The method as claimed in claim 8, wherein two of R_1 to R_6 are of formula $-(CH_2)_n-(C=O)-X-Y-Z$ and have Z=electron withdrawing group and the remaining R group is of formula $-(CH_2)_n-(C=O)-X-Y-Z$ and has Z=OH; or two of R_1 to R_6 are of formula $-(CH_2)_n-(C=O)-X-Y-Z$ and have Z=OH and the remaining R group is of formula $-(CH_2)_n-(C=O)-X-Y-Z$ and has Z=electron withdrawing group.

10. The method of any one preceding claim wherein the at least three of R_1 to R_6 are R_1, R_3 and R_5.

11. The method as claimed in claim 2, wherein Z' is O such that said ring is an anhydride.

12. The method as claimed in claim 1 or claim 11, wherein the compound of general formula (I) is of the general formula (II):



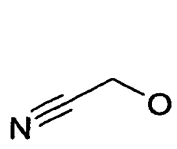
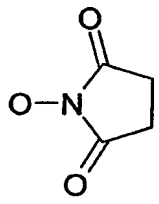
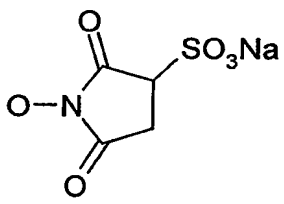
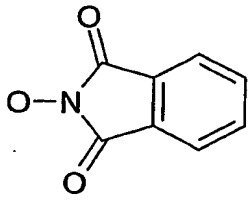
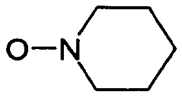
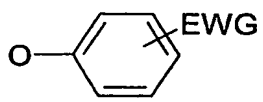
(II)

13. The method as claimed in any one preceding claim wherein Z is a leaving group, selected so as to make an activated derivative of carboxylic acid.

14. The method as claimed in any one preceding claim, wherein Z is a halogen atom selected from F, Cl and Br.

15. The method as claimed in any one of claims 1 to 13, wherein Z is selected from phenol substituted by at least one strong electron withdrawing group, cyanomethyl, hydroxysuccinimide or its sodium sulfonate derivative NHS or sulfo-NHS, hydroxyphthalimide, and hydroxypiperidine.

16. The method as claimed in claim 15, wherein Z is selected from:

wherein EWG is an electron withdrawing group.

17. The method as claimed in any of claims 1 to 10, wherein the compound is trimesic acid or a mono-, di-, or tri-succinimidyl ester thereof, or the compound is benzene-1,3,5-triacetic acid or a mono-, di-, or tri- succinimidyl ester thereof.

18. The method as claimed in claim 17, wherein the compound is trimesic acid or a mono- or di-succinimidyl ester thereof, or the compound is benzene-1,3,5-triacetic acid or a mono- or di-succinimidyl ester thereof.

19. The method as claimed in claim 17, wherein the compound is a tri-succinimidyl ester of trimesic acid, or the compound is a tri-succinimidyl ester of benzene-1,3,5-triacetic acid.

20. The method as claimed in any one of claims 17 to 19, wherein said succinimidyl ester is a substituted succinimidyl ester.

21. The method of claim 20 wherein said substituted succinimidyl ester is a sulfonate derivative of succinimide.

22. The method as claimed in any one preceding claim wherein a coupling reagent is present.

23. The method as claimed in claim 22, wherein the coupling reagent comprises an uronium- or phosphonium-based coupling reagent.

24. The method as claimed in claim 23, wherein the coupling reagent comprises benzotriazol-1-yloxytris (dimethylamino)phosphonium hexafluorophosphate (BOP).

25. The method as claimed in claim 22, wherein the coupling reagent comprises a carbodiimide.

26. The method as claimed in claim 25, wherein the carbodiimide is dicyclohexylcarbodiimide, diisopropylcarbodiimide or 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride.

27. The method as claimed in claim 26, wherein the carbodiimide is 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride.

28. The method as claimed in any one preceding claim wherein in step b) an excess of a tertiary base is added.

29. The method as claimed in claim 28, wherein the tertiary base is diisopropylethylamine, triethylamine, N-ethylmorpholine or N-methylmorpholine.

30. The method as claimed in any one preceding claim wherein in step b) additionally hydroxycinnamic acid is added.

31. The method as claimed in any one preceding claim wherein in step b) the amount of the compound is limiting, preferably such that not all amino groups of the solid support are carboxylated.

32. A solid surface obtainable by the method according to any of claims 1 to 31.

33. The solid surface of claim 32 which is a carboxy-terminated solid surface.

34. A method for conjugating an amino-group containing substrate to an amino-terminated surface of a solid support comprising:

i) performing the steps as defined in any of claims 1 to 31 to obtain a carboxy-terminated surface of a solid support; and

ii) contacting the amino-group containing substrate with the carboxy-terminated surface of the solid support of step i) under conditions allowing the formation of an amide bond between the carboxy group of the surface of the solid support and the amino group of the amino-group-containing substrate.

35. The method as claimed in claim 34, wherein in step ii) a coupling reagent as defined in any of claims 22 to 27 is present.

36. The method as claimed in claim 34 or claim 35, wherein in step ii) a tertiary base as defined in either claim 28 or claim 29 is present.

37. The method as claimed in any one of claims 34 to 36, wherein the amino group-containing substrate is derived from

nucleotides, amino acids, sugars, oligomers or polymers thereof.

38. A compound of the general formula (I) as defined in any one of claims 1 to 21.

39. A method for preparing the compound according to any of claims 1 to 21 comprising preparing the compound in a manner known *per se*.